

-2-

AMENDMENT TO THE CLAIMS

Claim 1 (Currently Amended): A composite matrix comprising a first layer and a second layer, each layer having a flexibility modifying agent, the first layer having at least about 5 dry weight percent flexibility modifying agent and a second layer having at least about 5 dry weight percent less flexibility modifying agent than the first layer, wherein at least one layer comprises a reconstituted composition.

Claim 2 (original): The composite matrix of claim 1 wherein the second layer has at least about 60 dry weight percent collagen.

Claim 3 (original): The composite matrix of claim 1 wherein the second layer has at least about 85 dry weight percent collagen.

Claim 4 (original): The composite matrix of claim 1 wherein the second layer comprises crosslinked collagen.

Claim 5 (original): The composite matrix of claim 1 wherein the second layer comprises intestinal collagen.

Claim 6 (original): The composite matrix of claim 1 wherein the flexibility modifying agent comprises flexibility modifying bio-macromolecules.

Claim 7 (original): The composite matrix of claim 6 wherein the flexibility modifying bio-macromolecules comprise an elastic protein.

Claim 8 (original): The composite matrix of claim 7 wherein the elastic protein comprises elastin.

-3-

Claim 9 (original): The composite matrix of claim 1 wherein the first layer has from about 5 to about 95 dry weight percent flexibility modifying agent.

Claim 10 (original): The composite matrix of claim 1 wherein the first layer comprises at least about 5 dry weight percent collagen.

Claim 11 (original): The composite matrix of claim 1 wherein the flexibility modifying agent comprises friction reducing macromolecules.

Claim 12 (original): The composite matrix of claim 11 wherein the friction reducing macromolecules comprise proteoglycans.

Claim 13 (original): The composite matrix of claim 11 wherein the friction reducing macromolecules comprise chondroitin sulfate, hyaluronic acid, derivatives thereof or mixtures thereof.

Claim 14 (original): The composite matrix of claim 11 wherein the first layer comprises from about 25 to about 90 dry weight percent friction reducing macromolecules.

Claim 15 (original): The composite matrix of claim 11 wherein the first layer comprises from about 10 dry weight percent collagen to about 75 dry weight percent collagen.

Claim 16 (original): The composite matrix of claim 1 wherein the flexibility modifying agent comprises elastic proteins and friction reducing macromolecules.

Claim 17 (original): The composite matrix of claim 1 wherein the second layer has a thickness of at least about 25 microns.

-4-

Claim 18 (original): The composite matrix of claim 1 wherein the first layer has a thickness of at least about 25 microns.

Claim 19 (original): The composite matrix of claim 1 wherein the first layer and the second layer each have a thickness from about 75 microns to about 1 millimeter.

Claim 20 (original): The composite matrix of claim 1 wherein the first layer is crosslinked.

Claim 21 (original): The composite matrix of claim 1 wherein the first layer is adjacent the second layer.

Claim 22 (original): The composite matrix of claim 1 further comprising a third layer having at least about 60 dry weight percent collagen wherein the first layer is between the second layer and the third layer.

Claim 23 (original): The composite matrix of claim 22 wherein the first layer comprises viable cells.

Claim 24 (original): The composite matrix of claim 1 wherein the second layer is folded over a central core of the first layer.

Claim 25 (original): The composite matrix of claim 1 wherein the second layer comprises growth factors.

Claim 26 (original): The composite matrix of claim 1 wherein the second layer comprises attachment compounds for fibroblast precursor cells or for vascular endothelial precursor cells.

-5-

Claim 27 (original): The composite matrix of claim 1 further comprising viable cells.

Claim 28 (original): The composite matrix of claim 1 wherein the flexibility modifying agent comprises a synthetic polymer.

Claim 29 (withdrawn): A valved prosthesis comprising a wall and a plurality of flexible leaflets supported by the wall, the wall comprising a composite matrix having a first layer with at least about 60 dry weight percent collagen and a second layer with at least about 25 dry weight percent collagen and at least about 5 dry weight percent elastin, and the leaflets comprising a composite matrix having a first layer with at least about 60 dry weight percent collagen and a second layer with at least about 25 dry weight percent collagen and at least about 5 dry weight percent proteoglycans.

Claim 30 (withdrawn): The valved prosthesis of claim 29 wherein the valved prosthesis is a heart valve.

Claim 31 (withdrawn): The valved prosthesis of claim 30 further comprising chordae.

Claim 32 (withdrawn): The valved prosthesis of claim 29 wherein the plurality of leaflets is three leaflets.

Claim 33 (withdrawn): The valved prosthesis of claim 29 wherein the valved prosthesis is a vascular graft.

Claim 34 (withdrawn): The valved prosthesis of claim 29 further comprising a stent connected to the wall.

-6-

Claim 35 (withdrawn): The valved prosthesis of claim 29 further comprising growth factors.

Claim 36 (Currently Amended): A method of forming a composite matrix, the method comprising fastening a first layer with a second layer, the first layer comprising at least about 25 weight percent collagen and a flexibility modifying agent and the second layer comprising a flexibility modifying agent having at least a 5 dry weight percent difference from the first layer.

Claim 37 (original): The method of claim 36 wherein fastening the first layer and the second layer comprises applying an adhesive at the interface between the first layer and the second layer.

Claim 38 (original): The method of claim 36 wherein the fastening the first layer and the second layer and the second layer comprises applying pressure.

Claim 39 (original): The method of claim 36 wherein the fastening the first layer and the second layer and the second layer comprises applying heat.

Claim 40 (original): The method of claim 36 wherein the fastening the first layer and the second layer and the second layer comprises chemical crosslinking